



MICROSLEEVE

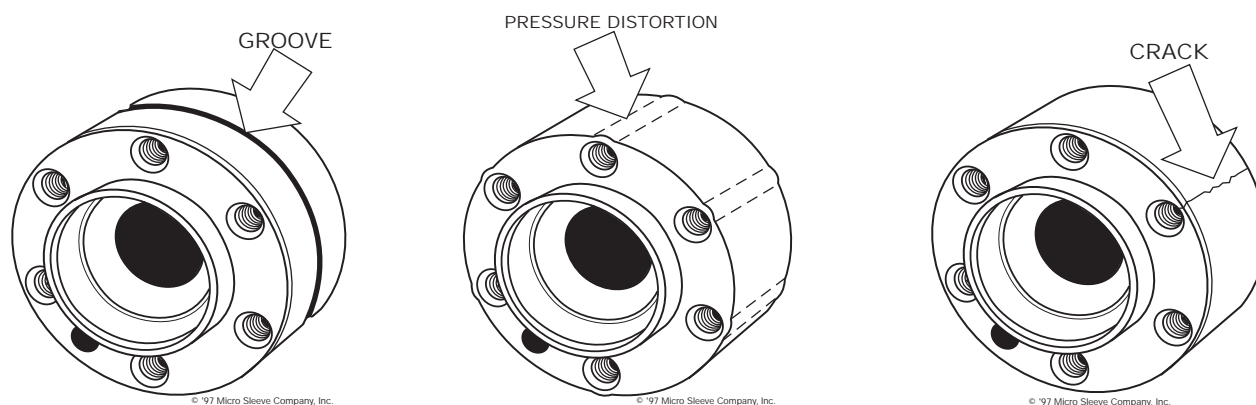
**CATALOG
2003-IV**

Rear Main Full Circle Seal Leaks Cause:

- “Contaminated” clutch, resulting in slippage, chatter and/or burned pressure plate.
- Warrantee problems on clutch/transmission repair
 - Contamination of new clutch assembly
 - Shows indication of possible leak in front seal of automatic transmission.
- Loss of crucial engine fluid.
- “Contaminated” parking space or garage.
- Car undercarriage oil contamination.

Rear Main Full Circle Seal Leaks Cannot Be Fixed by JUST Replacing the Seal - there will be a groove worn into the seal surface of the crankshaft flange. A Micro Sleeve Crankshaft Seal Surface Sleeve will replace the groove with a new, longer wearing seal surface.

Why Do Oil Seal Surface Leaks Happen?



During the normal course of use, the seal will wear a groove in the crankshaft flange.

Pressure distortion is caused by the overtorgung of the flywheel/flexplate mounting bolts (air impact used, not torque wrench), or reused “dirty” bolts.

Cracks above the mounting bolt holes can also be caused by the extreme stress of overtorguing the flywheel/flexplate mounting bolts.

MICROSLEEVE™ ELIMINATES THESE 3 SEALING PROBLEMS!

DIAGNOSIS:

- Oil pan and valve cover leaks **CAN SHOW** as rear main seal leaks, but only rear main seal leaks will contaminate a clutch and pressure plate.
- If the rear main seal is an older style two-piece seal, little can be done **if** a groove is worn in the crankshaft flange. Replace the two-piece seal with a quality seal, following the installation instructions closely. Use only quality seals.
- It is imperative to check the tail flange outside diameter. Crankshaft tail flange O.E. sizes are listed on the Dimensions Card included in MST301/IV Installation Kit.
- Use **accurate** calipers and measure tail flange outside diameter.
- Tail flange measurements .002”-.005” **UNDER** listed measurements are probably too small to press fit a Micro Sleeve crankshaft seal surface sleeve. Use sleeve at your own risk.
- The crankshaft tail flange will be smaller than O.E. tolerance if the engine has been rebuilt without properly replacing the crankshaft tail flange seal surface with a Micro Sleeve crankshaft seal surface sleeve. Some engine rebuilders “touch” the crankshaft tail flange and

grind/polish .002"-.005" of material off to **try** and remove the seal surface wear groove. This is very likely why there is seal leakage. The ONLY TEMPORARY FIX in this situation is installing a new seal correctly.

- If the crankshaft tail flange is approximately .025" to .030" larger, that indicates that a crankshaft seal surface sleeve has already been installed. If there is a crankshaft seal surface sleeve already installed, you can feel the edge of the sleeve at the outer corner of the tail flange. Replace the seal surface sleeve with a new Micro Sleeve seal surface sleeve and a quality Micro Sleeve full round seal.

NOTE: Some engine rebuilders grind down the crankshaft tail flange and install a crankshaft seal surface sleeve to bring the tail flange back to factory outside diameter dimensions. **CHECK THOROUGHLY FOR EVIDENCE OF INSTALLED CRANKSHAFT SEAL SURFACE SLEEVE. NEVER INSTALL A CRANKSHAFT SEAL SURFACE SLEEVE OVER ANOTHER CRANKSHAFT SEAL SURFACE SLEEVE! REPLACE SEAL ONLY!**

Approximately 1.6% of in-use vehicles have engines rebuilt annually, and only a few rebuilders grind crankshaft tail flanges. In any case, it is important to examine the tail flange for evidence of installed seal surface sleeve.

INSTALLATION OF SEAL SURFACE SLEEVES AND SEALS:

- It is imperative that the proper **Micro Sleeve Seal Surface Sleeve** installation tool be used for the application being resurfaced. Proper tooling is listed in the Micro Sleeve "In-Vehicle" Rear Main Seal catalog.
- Micro Sleeve Installation Tool "buttons" are designed to fit the pilot bearing recess with the **pilot bearing removed**.
- Proper **full circle seal** installation requires
 - the seal "spring" to face toward the engine
 - the seal to be "square" with the rotating mass (crankshaft tail flange)
 - the **seal and seal surface** to be liberally lubricated on 360° of the seal's and seal surface's mutual contact area. Light grease is an excellent "start-up" lubrication medium.
- Use standard seal manufacturer's installation procedure.
- Take care not to damage any rubber portion of the full circle seal. A light scratch on the oil seal "wet lip" will cause leakage.
- **The flat rear portion of the crankshaft tail flange is the proper reference point to "square" the seal to the rotating crankshaft flange. Exact uniform 360° measurement of the seal metal housing to the "face" of the crankshaft flange will indicate a perfectly positioned full circle seal. NOTE: Driving the full circle seal to "bottom out" in the seal cavity will not always "square" the seal to the rotating mass.**

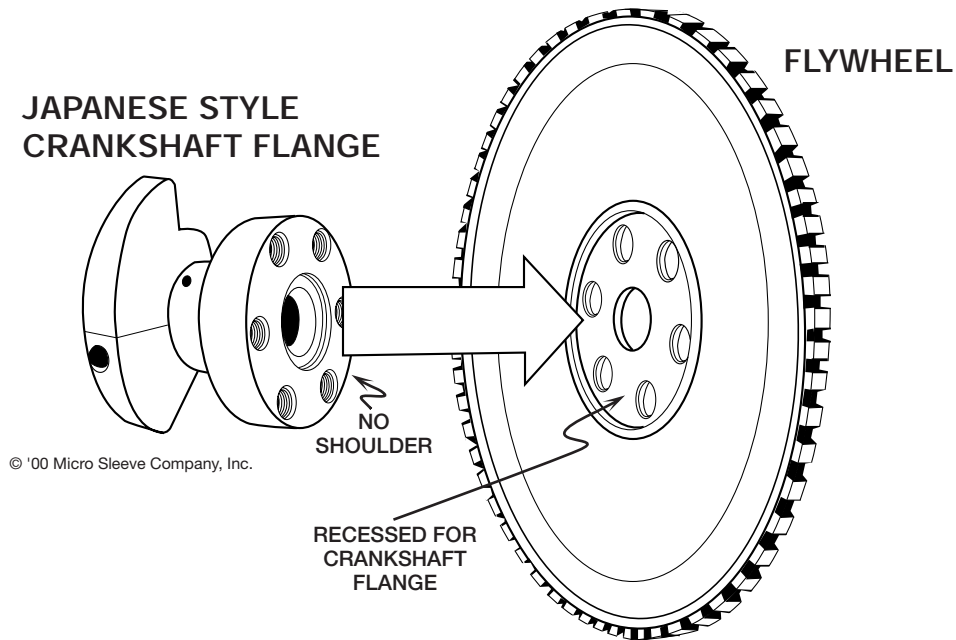
INSTALLATION TOOLING:

Micro Sleeve has spent many years perfecting the installation tooling to install the Micro Sleeve Crankshaft Seal Surface Sleeves. All installation tooling, when used for the proper applications, will work.

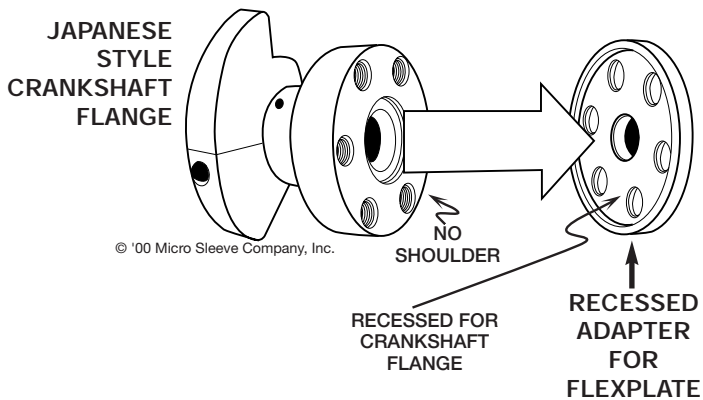
If you encounter problems, check to see if you are using the recommended tooling. If the recommended tooling doesn't work properly, check the other "buttons" for a proper fit.

NOTE: O.E. manufacturers sometimes make changes for no apparent reason. If Micro Sleeve is aware of this problem, we can react by modifying and furnishing the proper tools. Please note the engine make, model, size and year, if possible, to help Micro Sleeve make the proper corrections or additions to the tooling sets. Notify Micro Sleeve in writing at P.O. Box 151600, Arlington, TX 76015. Please include your phone number in case there are questions.

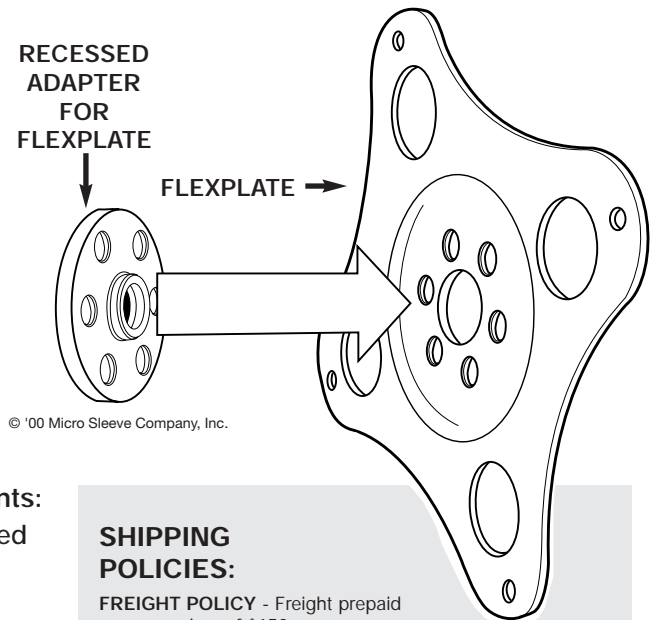
Japanese Style Recessed Flywheel/Flexplate Illustrations



CRANKSHAFT FLANGE SIDE



FLEXPLATE SIDE



MST301 In-vehicle Installation Tool Kit
Patent Registered with U.S. Patent Office



MST301 Kit Contents:

- 12" x 3/4" threaded rod
- Slide hammer
- Large backing plate
- Small backing plate
- 13 buttons
- 3 "cups" (3 different lengths) for the flanged sleeve
- Application/Dimension Card
- Installation Video

\$335.⁰⁰
Complete

SHIPPING POLICIES:

FREIGHT POLICY - Freight prepaid on orders of \$150 or more.

MINIMUM SHIPMENT - \$50

TERMS - Five percent discount if invoice is paid within 15 days of date of invoice, net 30

Mailing Address
P.O. Box 151600, Arlington, TX 76015

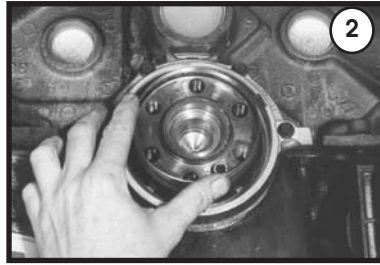
Shipping Address
3007 Pleasant Valley Lane, Suite C, Arlington, TX 76015

NOTE: POSSESSION OF THIS CATALOG AND PRICE SCHEDULE DOES NOT CONSTITUTE AN OFFER TO SELL. *This catalog supercedes any previously released price schedules. Prices subject to change without notice.*

INSTALLATION PROCEDURE



1
Removal of leaking rear main seal on a 5.7L Chevrolet Suburban.



2
Wipe crankshaft flange clean and position Micro Sleeve crankshaft seal surface sleeve.



3
Position MST301-1 Installation Tool into pilot bearing recess. (There are changeable screw-on "buttons" for different pilot bearing recess sizes.)

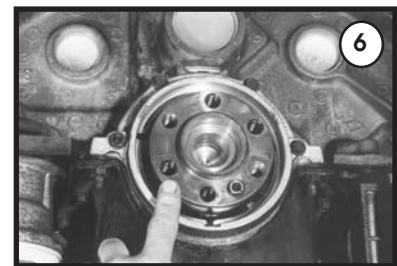
Note - Some aluminum seal housings have three small "fingers" protruding toward the crankshaft flange. These need to be clipped using side cutters to prevent interference with the installed sleeve. Make sure this clipped debris is cleaned from the seal housing.



4
"Square (align) the Micro Sleeve crankshaft seal surface sleeve with the crankshaft flange and "hammer" on using MST301 tool. (There are "recess holes" in the backing plate to accommodate the flex plate alignment pins.)



5
After pressing Micro Sleeve crankshaft seal surface sleeve onto flange, remove MST301 tool - seal surface sleeve must be flush with crankshaft flange face.



6
Check to see if crankshaft seal surface sleeve is "flush" with back of crankshaft flange.



7
Apply light grease to 360° of crankshaft seal surface sleeve seal surface area and 360° of full circle seal wet lip.



8
Install Micro Sleeve full round seal using standard seal manufacturer's installation procedures - align seal "square" with rotating mass (crankshaft flange). Option: "stake" seal to insure there is no seal rotation in seal cavity.



9
New seal surface - new seal - no leaks courtesy of Micro Sleeve "In-Vehicle" full circle rear main seal repair.

Cup Type Installation Tool for the "Flanged" Seal Surface Sleeve for Some Japanese Style Flanges Installation Instructions:

- Seat flanged seal surface sleeve into cup (flange to flair over cup edges).
- Place open end to crankshaft flange.
- With a light hammer, drive the flanged sleeve onto the crankshaft flange until the cup bottoms out.

CAUTION: Use proper depth cup for application (flat surface of seal surface sleeve to cover "wear groove" and leave new seal surface).

Micro Sleeve IV (In-vehicle) Rear Main Seal Repair Applications as of Sept. 2003

Make and Engine Type	Shaft Diameter	Year(s)	Sleeve & Seal Part No.	MST301 Tool Installation Button	Cup Style Installation Tool	List/User Cost
CHRYSLER						
2.0L/2.4L NEON	3.584"	1995-03	MS423	MST301/3		25.44
2.2L/2.5L	3.584"	1981-98	MS423	MST301/3		25.44
2.4L	3.583"	1996-01	MS423	MST301/3		25.44
2.5L JEEP	2.991"	1983-02	MS483	MST301/1		35.87
2.6L FWD	3.149"	1983-89	MS450	MST301/3		32.45
2.6L RWD	3.149"	1983-89	MS450-F		MST350-F	32.45
2.7L	3.583"	1996-03	MS423	MST301/2A		25.44
3.0L/3.2L	3.584"	1987-01	MS423	MST301/2A		25.44
3.3L/3.5L	3.584"	1990-01	MS423	MST301/2A		25.44
3.8L	3.584"	1991-01	MS423	MST301/2A		25.44
FORD						
1.6L/1.9L	3.465"	1981-96	MS443	MST301/4A		34.51
2.0L RANGER	3.625"	1983-88	MS444	MST301/4A		30.98
2.0L ZETEC	3.465"	1995-03	MS443	MST301/4A		34.51
2.2L PROBE	3.538"	1986-93	MS428	MST301/1		39.97
2.3L HSC	3.465"	1984-94	MS443	MST301/4A		34.51
2.3L OHC	3.625"	1986-97	MS444	MST301/4A		30.98
2.5L HSC	3.465"	1986-91	MS443	MST301/4A		34.51
2.5L OHC	3.625"	1998-01	MS444	MST301/4A		30.98
2.5L/3.0L/3.4L DURETEC	3.625"	1997-03	MS431	MST301/4A		30.98
2.8L/2.9L RANGER	2.375"	1974-92	MS430	MST301/4A (small backing plate)		24.58
3.0L	3.466"	1986-02	MS449	MST301/4A		33.77
3.2L SHO	3.465"	1993-95	MS443	MST301/5A		34.51
3.4L SHO	3.625"	1996-99	MS431	MST301/5A		30.98
3.8L/4.2L	3.625"	1983-03	MS441	MST301/1		30.35
4.0L	2.375"	1990-03	MS430	MST301/4A (small backing plate)		24.58
4.6L	3.625"	1991-03	MS431	MST301/1		30.98
4.6L/5.4L TRUCK	3.625"	1993-03	MS431	MST301/1		30.98
4.9L/240 c.i.	3.748"	1964-97	MS442	MST301/1		35.20
5.0L	3.625"	1983-01	MS441	MST301/1		30.35
5.8L	3.748"	1983-97	MS442	MST301/1		35.20
6.8L	3.625"	1997-03	MS431	MST301/1		30.98
GENERAL MOTORS						
1.8L O/J PONTIAC	3.381"	1982-86	MS432	MST301/4A		58.32
2.0L CHEVROLET	2.991"	1984-91	MS446	MST301/4A		24.55
2.0L B/O/P OHC	3.538"	1987-94	MS479	MST301/4A		33.48
2.2L SOHC	2.991"	1990-02	MS446	MST301/4A		24.55
2.3L/2.4L QUAD 4	3.228"	1987-03	MS433	MST301/4A		34.10
2.5L PONTIAC	2.988"	1985-93	MS448	MST301/5B		35.87
2.8L/3.1L/3.4L CHEV	2.991"	1985-03	MS446	MST301/3		24.55
3.3L BUICK	3.228"	1991-93	MS468	MST301/3		49.78
3.8L BUICK vin L/K	3.228"	1990-03	MS468	MST301/3		49.78
4.1L/4.5L/4.9L CADILLAC	2.830"	1982-93	MS434	MST301/1		29.54
4.3L/5.0L/5.7L CHEV	3.737" except LS1		1986-03	MS447	MST301/1	29.18
6.0L HD/7.0L/7.4L	4.324"	1990-00	MS435	MST301/1		39.21
6.2L/6.5L DIESEL	6.524"	1992-01	MS469-F		MST371-F	67.72
8.1L	4.332"	2000-03	MS485	MST301/1		39.21
HONDA/ACURA						
1.5L D-15 ALL	3.149"	1984-91	MS436-F		MST336-F	46.91
1.6L D-16 / B-16	3.149"	1988-00	MS436-F		MST336-F	46.91
1.7L D17	3.149"	1986-02	MS436-F		MST336-F	46.91
1.8L ES/ET	3.149"	1983-87	MS436-F		MST336-F	46.91
2.0L BS/BT/B20	3.149"	1983-01	MS436-F		MST336-F	46.91
2.0L F20/K20	3.149"	2000-02	MS466-F		MST336-F	41.47
2.1L B21	3.149"	1990-91	MS436-F		MST336-F	46.91
2.2L F22/H22	3.149"	1990-01	MS436-F		MST336-F	46.91
2.3L F23/H23	3.149"	1992-02	MS436-F		MST336-F	46.91
2.5L C25	3.149"	1986-92	MS466-F		MST336-F	41.47
2.5L G25	3.149"	1992-98	MS436-F		MST336-F	46.91
2.7L C27	3.149"	1988-97	MS466-F		MST336-F	41.47
3.0L C30/J30	3.149"	1991-03	MS466-F		MST336-F	41.47
3.2L C32	3.149"	1991-02	MS466-F		MST336-F	41.47
3.5L C35/J35	3.149"	1996-02	MS466-F		MST353-F	41.47
ISUZU						
2.0L 4ZC	3.737"	1983-89	MS438	MST301/2A		41.96
2.2L F22B6	3.149"	1996-97	MS436-F		MST353-F	46.91
2.3L 4ZDI	3.737"	1984-95	MS438	MST301/2A		41.96
2.6L 4ZEI	3.737"	1988-97	MS438	MST301/2A		41.96

Micro Sleeve IV (In-vehicle) Rear Main Seal Repair Applications as of Sept. 2003

Make and Engine Type	Shaft Diameter	Year(s)	Sleeve & Seal Part No.	MST301 Tool Installation Button	Cup Style Installation Tool	List/User Cost
ISUZU (continued)						
3.2L 6VDI	3.737"	1992-01	MS438	MST301/2A		41.96
3.5L 6VEI	3.737"	1992-01	MS438	MST301/2A		41.96
4.3L (GM)	3.737"	1997-00	MS447	MST301/1		29.18
MAZDA						
2.0L FE	3.538"	1983-87	MS428	MST301/1		39.97
2.2L F2	3.538"	1982-93	MS428	MST301/1		39.97
2.6L G6	3.538"	1989-94	MS470	MST301/1		41.54
3.0L B3000	3.466"	1994-03	MS449	MST301/4A		33.77
MITSUBISHI						
1.6L 4G61	3.149"	1985-93	MS450-F		MST350-F	32.45
1.8L G62B	3.149"	1984-88	MS450-F		MST353-F	32.45
1.8L 4G93	3.346"	1992-01	MS473	MST301/5A		54.92
2.0L 4G63/G63 6BOLT	3.149"	1985-92	MS450-F		MST350-F	32.45
2.3L 4D55 DIESEL	3.149"	1983-86	MS450-F		MST353-F	32.45
2.4L G64 6BOLT	3.149"	1985-92	MS450-F		MST350-F	32.45
2.6L G54B FWD	3.149"	1983-89	MS450	MST301/3		32.45
2.6L G54B RWD	3.149"	1983-89	MS450-F		MST350-F	32.45
3.0L 6G72	3.584"	1988-02	MS423	MST301/3		25.44
3.5L 6G74	3.584"	1994-01	MS423	MST301/3		25.44
NISSAN/INFINITI						
1.5L E15	3.149"	1982-85	MS453	MST301/3		30.69
1.6L E16	3.149"	1983-88	MS453	MST301/7		30.69
1.6L CA16/GA16	3.306"	1987-99	MS452	MST301/7		42.21
1.7L CD17 DIESEL	3.306"	1985-86	MS452	MST301/7		42.21
1.8L CA18	3.306"	1984-89	MS452	MST301/7		42.21
2.0L L20/Z20	3.149"	1974-86	MS453-F		MST353-F	30.69
2.0L CA20	3.306"	1982-89	MS452	MST301/9		42.21
2.0L SR20DE	3.306"	1991-00	MS452	MST301/7		42.21
2.4L L24/Z24/KA24	3.149"	1970-02	MS453-F		MST353-F	30.69
2.5L SD25 DIESEL	3.149"	1981-86	MS453-F		MST353-F	30.69
2.6L L26/2.8L L28	3.149"	1974-89	MS453-F		MST353-F	30.69
3.0L VG30	3.306"	1984-99	MS452	MST301/2A		42.21
3.0L VQ30	3.306"	1994-02	MS474	MST301/7		42.03
3.3L VG33	3.306"	1995-03	MS452	MST301/7		42.21
3.5L VQ35	3.306"	2002-03	MS452	MST301/7		42.21
SATURN						
1.9L OHC	2.991"	1990-02	MS446	MST301/4A		24.55
SUBARU						
1.8L EA81 OHV	2.994"	1980-89	MS481	MST301/4A		34.80
1.8L EA82 OHC	2.994"	1985-94	MS482	MST301/4A		34.80
1.8L EJ18E	3.384"	1993-97	MS478	MST301/4A		42.28
2.2L EJ22/2.5L EJ25	3.384"	1989-01	MS478	MST301/4A		42.28
2.7L ER27	2.994"	1988-91	MS482	MST301/4A		34.80
3.3L EG33	3.382"	1991-02	MS478	MST301/4A		42.28
TOYOTA/LEXUS						
1.5L 1AC/3AC	2.757"	1980-88	MS457	MST301/5B		32.52
1.5L 3E/3EE/5EFE	3.149"	1987-98	MS459	MST301/5B		42.06
1.6L 4AC/4AF/4AG	2.757"	1983-97	MS457	MST301/5B		32.52
1.8L 7AFE	2.757"	1993-97	MS457	MST301/5B		32.52
2.0L 2SE/3SFE	3.347"	1983-00	MS461	MST301/5A		38.87
2.0L 3YE	3.149"	1983-85	MS460	MST301/3		42.06
2.2L 5SFE	3.347"	1990-01	MS461	MST301/3		38.87
2.2L 20R	3.149"	1975-80	MS451	MST301/5A		33.88
2.4L 22R	3.149"	1980-95	MS451	MST301/5A		33.88
2.4L 2L DIESEL	3.347"	1982-90	MS461	MST301/5A		38.87
2.4L 2TZ/2RZ	3.464"	1991-03	MS475	MST301/3		51.50
2.5L 2VZFE	3.625"	1988-91	MS463	MST301/5A		52.39
2.6L 4ME/2.8L 5ME/5MG	3.149"	1976-88	MS451	MST301/3, 5B		33.88
2.7L 3RZFE	3.464"	1994-03	MS475	MST301/3, 5B		51.50
3.0L 3VZE/3VZFE	3.625"	1988-95	MS463	MST301/3, 5B		52.39
3.0L 1MZFE	3.625"	1994-03	MS463	MST301/3, 5B		52.39
3.4L 5VZFE	3.625"	1995-01	MS463	MST301/3, 5B		52.39
INSTALLATION TOOL MST301/ IV Installation Tool Kit – Universal Rear Sleeve Installation Tool - Complete.....						\$335.00